

Review

THELYPTERIDACEAE by R. E. Holttum. Flora Malesiana, Series II, Volume 1, part 5: i-xx, 331-599 (total 288 pp), 20 figs., publ. date 1 March 1982. Sold by Martinus Nijhoff, P.O. Box 566, 2501 CN The Hague, Netherlands, price not indicated.

Malesia is the centre of diversity for Thelypteridaceae. Studies of this fern family were until now limited by lack of information for Malesia, the area from which, after fourteen years of concentrated research and many preliminary and related papers, Professor Holttum has classified, named, keyed and described 440 species.

Thelypteridaceae may contain the most individuals, the greatest biomass, and the largest number of species of all ferns. In some habitats they are the dominant herbaceous vegetation. The family contains relictual species living in mountain forests threatened with extinction as well as spreading pantropic weeds that hybridize frequently. They range in size from delicate dwarfs, fertile when less than 5 cm high, to coarse bristly giants bearing fronds 3 m long.

One can quickly learn to recognize the family at a glance, even from fronds without sori, by the terrestrial habit and mostly pinnate fronds with narrow pinnae often regularly lobed. The cartilaginous reinforcements between lobes, the pinnate venation plan, the axes not being grooved where pinnae meet rachis, and the needle-pointed hairs, all contribute to a characteristic appearance, and the use of a hand lens for absolute confirmation is rarely necessary.

But although the family itself is very distinctive, problems in distinguishing genera and species were, until Holttum's work, probably more difficult than in any other fern family, so that everything was often lumped into a single genus, *Thelypteris*. Holttum catalogued the species of the Old World, discovering natural groups and characters that would serve for their recognition. Some key characters are conspicuous, such as whether or not the lower pinnae of a frond are reduced in size, others technical, such as type of paraphysis structure. Only after the diversity had been sorted out satisfactorily, in detail, was it practical to consider dividing the family. Only now do we have the option of whether to place all one thousand species of Thelypteridaceae in one genus, and then be often obliged to also cite a subgeneric or sectional name to indicate more precisely the meaning of a binomial, or, to divide Thelypteridaceae into smaller and distinctive genera. For choosing to divide, into 22 genera for Malesia, Holttum is not to be considered a "splitter." In previous revisions for Flora Malesiana of families Gleicheniaceae and Cyathaceae, he decided to recognize fewer genera than many pteridologists writing afterwards. He has consistently attempted to use the genus, the first part of the latin binomial that is the name of a plant, in a way to accord it the optimal taxonomic significance between family and species, while thinking on a world scale.

For defining species of thelypterids, information about the characteristics and distribution of hairs and glands was discovered by Holttum to be very valuable.

Such details were dismissed by many previous botanists as unimportant, or were unobserved. At the species level alone, how much an advance of knowledge this revision represents can be indicated by comparing it with a work from an area thought to be well-studied, Copeland's Fern Flora of the Philippines (1960), in which 100 species now considered thelypterids were included. Holttum accounts for 116 Philippine species, but more than half of these are not the same as Copeland's, many of which had to be reduced to synonymy or were misinterpretations.

As Holttum states, "no classification can be final." Some species will be found to require remodeling. New species remain to be collected; only now can they be recognized as such. Probably some generic boundaries will have to be adjusted, and at least one relationship with a New World group needs clarification. But this may well be the final synthesis, for this subject, of such a vast amount of information. I think it very unlikely that ever again anyone will, with comparable talent, experience, energy, and facilities, attempt to address this family in detail at its centre of diversity. However, a great amount of local work remains to be done in most parts of Malesia, work that will be given impetus by this publication.

This part five completes volume one of the Pteridophyta for Flora Malesiana. It begins with an elegant discourse on the history of fern classification, also by Holttum, emphasizing the towering role of Carl Christensen, to whom the volume is dedicated.

M.G. PRICE,
Herbarium, NUB
University of Michigan
Ann Arbor, MI 48109, U.S.A.